CLAIMS

[1] A plasma display panel equipped with a front substrate and a back substrate facing each other across a discharge space, and with, between the front substrate and the back substrate, a plurality of row electrode pairs and a plurality of column electrodes extending in a direction intersecting the row electrode pairs to form unit light emitting areas in the respective portions of the discharge space corresponding to the intersections with the row electrode pairs, characterized by providing:

on an area facing the unit light emitting area between the front substrate and the back substrate, a magnesium oxide layer that includes a magnesium oxide crystal causing a cathode-luminescence emission having a peak within a wavelength range of 200nm to 300nm upon being excited by electron beams.

[2] The plasma display panel according to claim 1, wherein the magnesium oxide crystal is a magnesium oxide single crystal produced by a vapor-phase oxidation technique.

[3] The plasma display panel according to claim 1, wherein the magnesium oxide crystal causes a cathode-luminescence emission having a peak within a range from 230nm to 250nm.

[4] The plasma display panel according to claim 1, wherein the magnesium oxide crystal has a particle diameter of 2000 or more angstroms.

[5] The plasma display panel according to claim 1, wherein

the magnesium oxide layer is formed on a dielectric layer covering the row electrode pairs.

[6] The plasma display panel according to claim 1, wherein the unit light emitting area is divided into a first light emitting area for causing light emission for forming an image and a second light emitting area for initiating a discharge for selecting the first light emitting area to cause the light emission for forming the image, and the magnesium oxide layer is provided in an area facing the second light emitting area of the unit light emitting area.

[7] The plasma display panel according to claim 2, wherein the magnesium oxide single crystal is a magnesium oxide single crystal having a cubic single-crystal structure.

[8] The plasma display panel according to claim 2, wherein the magnesium oxide single crystal is a magnesium oxide single crystal having a cubic polycrystal structure.

[9] The plasma display panel according to claim 2, wherein the magnesium oxide single crystal has a particle diameter of 500 or more angstroms.

[10] The plasma display panel according to claim 2, wherein the magnesium oxide single crystal has a particle diameter of 2000 or more angstroms.

[11] The plasma display panel according to claim 1, comprising a dielectric layer covering either the row

electrode pairs or the column electrodes, and a protective layer covering the dielectric layer, wherein the magnesium oxide layer, which includes the magnesium oxide crystal causing a cathode-luminescence emission having a peak within a wavelength range of 200nm to 300nm upon being excited by electron beams, constitutes the protective layer of a lamination structure, together with a thin-film magnesium oxide layer formed by vapor deposition or spattering.

[12] The plasma display panel according to claim 11, wherein the thin-film magnesium oxide layer is formed on the dielectric layer, and the magnesium oxide layer including the magnesium oxide crystal is formed on the thin-film magnesium oxide layer.

[13] The plasma display panel according to claim 11, wherein the magnesium oxide layer including the magnesium oxide crystal is formed on the dielectric layer, and the thin-film magnesium oxide layer is formed on the magnesium oxide layer including the magnesium oxide crystal.

[14] The plasma display panel according to claim 11, wherein the magnesium oxide layer including the magnesium oxide crystal and the thin-film magnesium oxide layer are individually formed on the entire surface of the dielectric layer.

[15] The plasma display panel according to claim 11, wherein the thin-film magnesium oxide layer is formed on

the entire surface of the dielectric layer, and the magnesium oxide layer including the magnesium oxide crystal is formed in a position opposite to a part of the surface of the dielectric layer.

[16] The plasma display panel according to claim 15, wherein the magnesium oxide layer including the magnesium oxide crystal is formed on a portion facing either the row electrode pair or the column electrode.

[17] The plasma display panel according to claim 15, wherein the magnesium oxide layer including the magnesium oxide crystal is formed on a portion excepting a portion facing either the row electrode pair or the column electrode.

[18] A method of manufacturing a plasma display panel equipped with a front substrate and a back substrate facing each other across a discharge space, electrodes formed on at least one of the front and back substrates, a dielectric layer covering the electrodes, and a protective layer covering the dielectric layer, characterized by having:

a process of forming a magnesium oxide layer that includes a magnesium oxide crystal causing a cathode-luminescence emission having a peak within a wavelength range of 200nm to 300nm upon being excited by electron beams, in a position covering a required portion of the dielectric layer.

[19] The method of manufacturing the plasma display panel

according to claim 18, wherein in the process of forming the magnesium oxide, a coating of a paste including the magnesium oxide crystal is applied to a required portion of the dielectric layer to form the magnesium oxide layer.

[20] The method of manufacturing the plasma display panel according to claim 18, wherein in the process of forming the magnesium oxide, a powder of the magnesium oxide crystal is sprayed and deposited on the dielectric layer to form the magnesium oxide layer.

[21] The method of manufacturing the plasma display panel according to claim 18, wherein the magnesium oxide crystal is a magnesium oxide single crystal produced by a vapor-phase oxidation technique.

[22] The method of manufacturing the plasma display panel according to claim 18, wherein the magnesium oxide crystal causes a cathode-luminescence emission having a peak within a range from 230nm to 250nm.

[23] The method of manufacturing the plasma display panel according to claim 18, wherein the magnesium oxide crystal has a particle diameter of 2000 or more angstroms.

[24] The method of manufacturing the plasma display panel according to claim 21, wherein the magnesium oxide single crystal is a magnesium oxide single crystal having a cubic single-crystal structure.

[25] The method of manufacturing the plasma display panel according to claim 21, wherein the magnesium oxide single crystal is a magnesium oxide single crystal having a cubic polycrystal structure.

[26] The method of manufacturing the plasma display panel according to claim 21, wherein the magnesium oxide single crystal has a particle diameter of 500 or more angstroms.

[27] The method of manufacturing the plasma display panel according to claim 21, wherein the magnesium oxide single crystal has a particle diameter of 2000 or more angstroms.

[28] The method of manufacturing the plasma display panel according to claim 18, wherein, in a process of forming the protective layer, the process of forming the magnesium oxide layer is performed together with a process of forming a thin-film magnesium oxide layer by vapor deposition or spattering to form the protective layer of a lamination structure made up of the thin-film magnesium oxide layer and the magnesium oxide layer including the magnesium oxide crystal.

[29] The method of manufacturing the plasma display panel according to claim 28, wherein after the process of forming the thin-film magnesium oxide layer has been performed, the process of forming the magnesium oxide layer including the magnesium oxide crystal is performed.

[30] The method of manufacturing the plasma display panel

according to claim 28, wherein after the process of forming the magnesium oxide layer including the magnesium oxide crystal is performed, the process of forming the thin-film magnesium oxide layer is performed.

[31] The method of manufacturing the plasma display panel according to claim 28, wherein in the process of forming the protective layer, the magnesium oxide layer including the magnesium oxide crystal and the thin-film magnesium oxide layer are individually formed on the entire surface of the dielectric layer.

[32] The method of manufacturing the plasma display panel according to claim 28, wherein in the process of forming the thin-film magnesium oxide layer, the thin-film magnesium oxide layer is formed on the entire surface of the dielectric layer, and in the process of forming the magnesium oxide layer including the magnesium oxide crystal, the magnesium oxide layer including the magnesium oxide crystal is formed in a position opposite to a part of the surface of the dielectric layer.

[33] The method of manufacturing the plasma display panel according to claim 32, wherein in the process of forming the magnesium oxide layer including the magnesium oxide crystal, the magnesium oxide layer including the magnesium oxide crystal is formed on a portion facing the electrode.

[34] The method of manufacturing the plasma display panel according to claim 32, wherein in the process of forming

the magnesium oxide layer including the magnesium oxide crystal, the magnesium oxide layer including the magnesium oxide crystal is formed on a portion excepting a portion facing the electrode.